

APRIL/MAY 2024

**CAIM42A/FAIM42A/BAIM42A —
OPERATIONS RESEARCH**

Time : Three hours

Maximum : 75 marks



SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Classify of O.R. Models.
2. Give any two features of O.R.
3. Define objective function of the general LPP.
4. What is the use of slack variable?
5. Define Transportation problem.
6. Give the mathematical form of an Assignment problem.
7. Write the expansion of PERT.
8. Explain critical path.

- (b) Solve the following game and determine the value of the game.

$$A \begin{matrix} & B \\ \begin{pmatrix} 5 & 1 \\ 3 & 4 \end{pmatrix} \end{matrix}$$

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain various types of models used in OR giving suitable examples.
17. Use simplex method to solve the LPP

$$\text{Maximize } Z = 5x_1 + 4x_2$$

$$\text{Subject to : } 4x_1 + 5x_2 \leq 10$$

$$3x_1 + 2x_2 \leq 9$$

$$8x_1 + 3x_2 \leq 12$$

$$\text{and } x_1, x_2 \geq 0$$

18. Solve the following assignment problem.



		Machines			
		M ₁	M ₂	M ₃	M ₄
Jobs	J ₁	5	7	11	6
	J ₂	8	5	9	6
	J ₃	4	7	10	7
	J ₄	10	4	8	3

19. Find the critical path for the following network.

